REMARKS

Claims 1-14 are currently pending in this application.

At pages 2-4 of the Office Action, claims 1-14 have been rejected under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over JP 11-021,197 (hereinafter "JP '197"). JP '197 allegedly discloses a process for producing a fluoride single crystal (note title), discussed below. The fluoride single crystal allegedly is formed by the Czochralski method using a seed crystal (note paragraph [0011]). The fluoride can be calcium fluoride, barium fluoride or magnesium fluoride (note paragraph [0012]). The seed crystal can have the main crystal growth plane in the {111} or {100} plane (note paragraph [0010]). The single crystal can have a diameter of 25 cm and a thickness of 50 mm (note paragraph [0090]). In the process of JP '197, the pulling rate is 0.5 to 1 mm/hr (note paragraph [0103]), and the apparatus used in JP '197 has a means 302 to prevent the heat from the heater 303 from going up (just as the lid (14) in the claimed invention, note instant specification, page 20, lines 1-3). It is alleged that since the process of JP '197 uses a slow pulling rate, which is well within the rate used in the claimed invention (i.e., less than 4 mm/hr, note instant specification, page 14, lines 12-21) and has a means to prevent the heat from the heater from going up as discussed above, the as-grown single crystal product of JP '197 would inherently have the same light transmittance as that of the claimed product.

The rejection alleges that the product of JP '197 is subjected to an annealing treatment (note paragraph [0052] or [0090]), and concludes that the product of JP '197 anticipates the claimed product.

Alternatively, the process limitations of "as grown" in claims 1-14 were noted. However, the rejection alleges that since a substantially similar product, as in the applied prior art, has been found, the burden of proof is shifted to Applicants to establish that their product is patentably distinct and not the Examiner to show the same process of making, citing *In re Brown,* 173 USPQ 685 and *In re Fessmann,* 180 USPQ 324.

The rejection states that Applicant's arguments and Declaration filed June 25, 2007 were fully considered but were not persuasive. The rejection alleges that Applicants argue that for JP '197, annealing does not improve light transmittance of a crystal. The rejection contends that the crystal produced by JP '197, before the annealing step, appears to

inherently have the same light transmittance as the claimed product because of the reasons as stated in the above rejection, namely, same pulling rate and same means to prevent heat from going up. The rejection alleges that Applicants have not provided any evidence to show that the product of JP '197 would not have the same light transmittance. It is alleged that in Comparative Experiment II of the Declaration filed June 25, 2007, the barrier 13 (i.e., the lid) was not used, whereas in JP '197, the heat insulating material (302) does have the "lid" portion, thus, the Comparative Experiment II does not compare the claimed invention to the closest prior art. In the event the "as-grown" crystal of JP '197 does not inherently have the same light transmittance, it can be subjected to annealing which is known in the art to improve the light transmittance. In the Declaration filed June 25, 2007, it is shown that heat treatment does not improve the light transmittance for calcium fluoride crystal which was formed by the Bridgeman-Stockburger method, not for the crystal which was formed by the pulling method (Czochralski method).

Applicants respectfully, but strenuously, traverse and request reconsideration and withdrawal of these rejections. These rejections will be discussed together below.

In order to support an anticipation rejection under 35 U.S.C. §102(b), each and every element of the claimed invention, or its substantial equivalent, must be found within the four corners of a single reference cited by the Examiner to anticipate. Hybritech Inc. v. Monoclonal Antibodies, Inc., 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986).

As reiterated by the Supreme Court in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. ____, 82 U.S.P.Q.2d 1385 (2007), the framework for the objective analysis for determining obviousness under 35 U.S.C. §103 is stated in *Graham v. John Deere*. Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in *KSR International Co. v. Teleflex Inc.*, 72 Fed. Reg., No. 195 (October 10, 2007) at page 57527 (hereinafter "Examination Guidelines"). The factual inquiries enunciated by the Court are as follows:

(1) Determining the scope and content of the prior art;

(2) Ascertaining the differences between the claimed invention and the prior art; and

(3) Resolving the level of ordinary skill in the pertinent art.

Examination Guidelines at page 57527. **Objective evidence relevant to the issue of obviousness must be evaluated by Office personnel.** Examination Guidelines at page 57527 (emphasis added).

Claim 1 of the present invention is directed to an as-grown single crystal grown in a single crystal pulling method without annealing. The crystal has a light transmittance of not less than 80%, measured at a wavelength of 632.8 nm.

The prior art rejection is based on a basic assertion that the properties of the claimed crystal (dimensions and light transmittance) are inherently present in crystals produced by similar methods. However, the prior Declaration filed June 25, 2007 ("First Declaration") and Declaration Under 37 C.F.R. §1.132 submitted herewith ("Second Declaration") (both of Mr. Nawata) clearly show that a crystal produced by the single crystal pulling method (Czochralski method) of JP '197 does not inherently exhibit the claimed properties, whether or not annealed. Also, the Second Declaration makes clear that the single crystal pulling apparatus used in testing did indeed include a lid (14).

As detailed on the record previously, the process of JP '197 is different from the present invention and, therefore, does not inherently produce the same product.

Despite the differences in the methods of JP '197 (no barrier between heater and crucible) and disclosed in the present application (barrier present), the rejection asserts that the products are the same after annealing. However, the First Declaration clearly shows that the two methods produce different products, regardless of annealing. Comparative Experiment II in the First Declaration repeats the crystal pulling method of JP '197 (Czochralski method - which lacks a barrier, but has a lid) and produces a crystal having light transmittance at 632.8 nm of 72.5%. After annealing, the light transmittance was still only 73.4%. The high surface roughness of the crystal produced according to JP '197 was essentially unchanged after annealing. The Second Declaration makes clear that the single crystal pulling apparatus used in testing did indeed include a lid (14) and was conducted according to the Czochralski method.

Thus, not only does an "as-grown" crystal produced according to JP '197 not inherently possess the claimed light transmittance of not less than 80%, measured at a wavelength of 632.8 nm, but such light transmittance is not achievable by annealing as

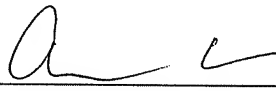
asserted by the rejection. Since the claimed crystal has properties not achievable by the prior art, claims 1-14 are not anticipated by JP '197.

In addition, JP '197 does not render the present invention obvious. Nothing in JP '197 indicates that the claimed light transmittance would be achievable, much less desirable. Applicants have demonstrated that even if crystals produced according to JP '197 were annealed, their surface quality and light transmittance would not improve. Therefore, claims 1-14 are non-obvious over JP '197.

For the foregoing reasons, Applicants respectfully request reconsideration and allowance of claims 1-14.

Respectfully submitted,

THE WEBB LAW FIRM

By 

Ann M. Cannoni
Registration No. 35,972
Attorney for Applicants
700 Koppers Building
436 Seventh Avenue
Pittsburgh, Pennsylvania 15219-1845
Telephone: 412-471-8815
Facsimile: 412-471-4094
E-mail: webblaw@webblaw.com